

Public Comments on the Nomination of Asbestos, Naturally- Occurring and Atypical Forms

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Inter-species differences

■ Anatomical and physiological differences influence rates of lung deposition and clearance.

- Rats are obligatory nose-breathers, while humans breathe through the nose and mouth.
- Only a fraction of human-respirable fibers are rat-respirable.
- Longer fibers, thought to be important in causing adverse health effects in humans, are more likely to deposit in the ciliated airways in rats than in the alveolar region.

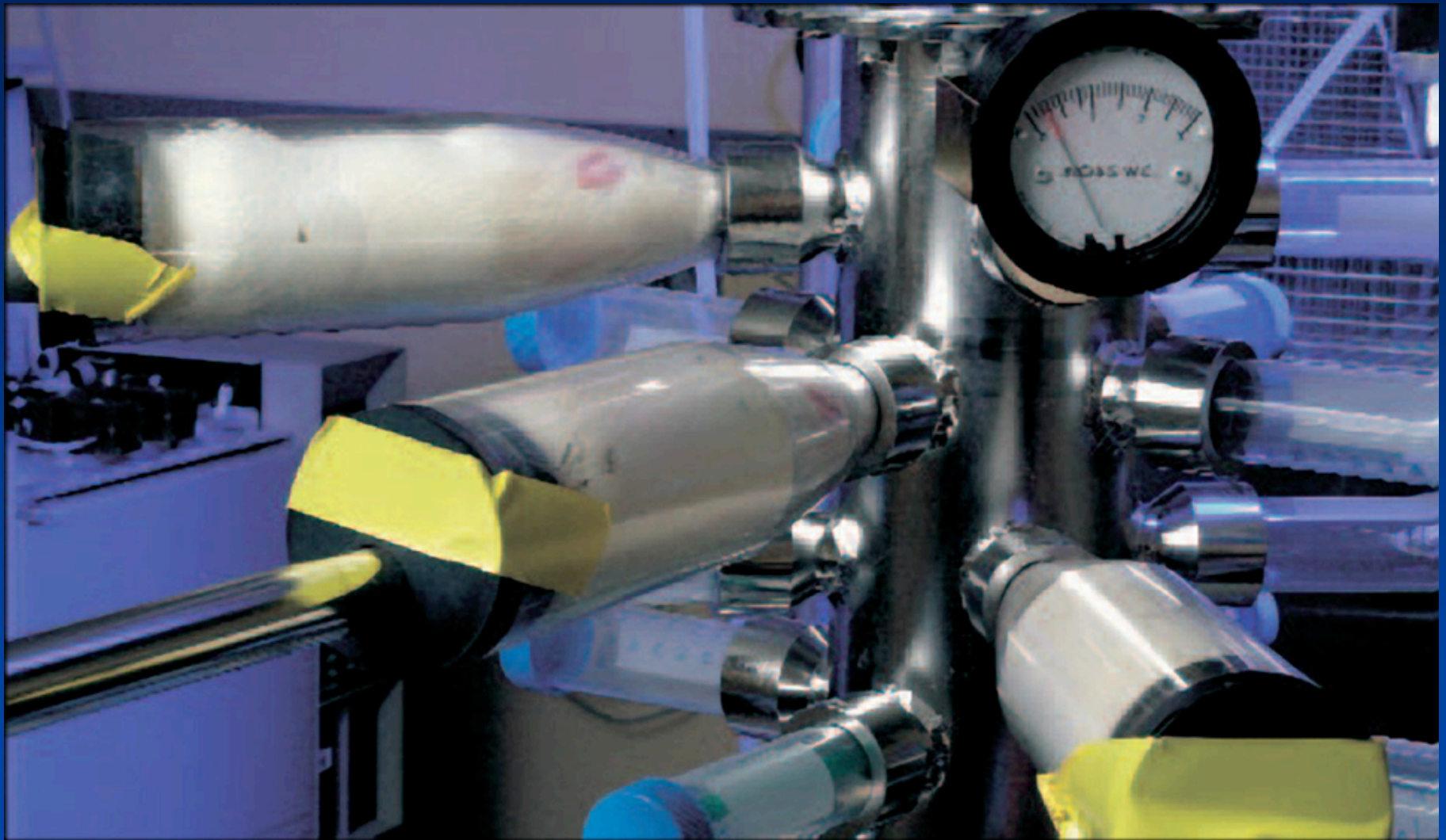
■ Animals used in laboratories have much shorter life-spans than humans.

- Fibers persist longer in humans.
- The number of cells at risk and the number of cell generations is much higher in humans than in rats.

Rats are 100 to 1000-fold less sensitive than humans to developing lung cancer or mesothelioma following asbestos exposure.*

*Muhle, H. and Pott, F. 2000. Asbestos as Reference Material for Fibre-Induced Cancer. *Int Arch Occup Environ Health*. 73(Suppl): S53-S59.

Nose-only Inhalation Exposure



May M. Breathtaking research. Environ Health Perspect 2000;108:A168-9